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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,316	08/24/2001	John T. Nordberg	2753.01US02	3885

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EXAMINER

PALABRICA, RICARDO J

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 09/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/939,316

Applicant(s)

NORDBERG, JOHN T. 

Examiner

Rick Palabrica

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 13 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,7-15,17-20,22,24,26,28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,7-15,17-20,22,24,26,28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election of Group I (without traverse), embodiment as shown in Fig. 65 (with traverse), magnetic species for the circuit (with traverse), and at least one hemispheric coil (with traverse), in Paper No. 7, is acknowledged. Applicant did not provide grounds for the traverse of elected species.

The restriction requirement is still deemed proper and is therefore made **FINAL**.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Specification

2. The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an adequate written description of the invention and as failing to adequately teach how to make and/or use the invention, i.e., failing to provide an enabling disclosure.

The claimed invention is an apparatus for commercial production of electricity by nuclear fusion. However, there is no adequate or enabling disclosure of how such could be accomplished using the applicant's invention.

Additionally, the specification is replete with **statements of unknowns, statements of belief, statements of needs to fill information gaps, statements of intent or plans, and assumptions of success contingent upon success of other factors**. As discussed in more detail below these statements by the applicant represent admissions that there is **no operative embodiment** for the claimed invention.

On page 16, lines 1+, the applicant discloses that "conducting spheres 102 will likely be formed in two hemispheres with heat-shrunk overlapping butt joint as shown in Fig. 3." The disclosure is insufficient as to how exactly the two hemispheres are formed. The disclosure is also insufficient as to the manner in which heat shrinking should be performed to ensure the integrity of the spheres under the expected harsh temperature and pressure conditions of the systems.

On page 16, 2nd full paragraph, the applicant discloses that "every effort should be made to reduce any influence that may cause a non-harmonic electromagnetic wave pattern." The disclosure is insufficient as to why exactly said non-harmonic pattern must be avoided.

On page 16, 3rd full paragraph, the applicant discloses that steps should be taken to "insure that the entire cavity is filled completely." The disclosure is insufficient as to what exactly are these steps to so ensure full cavity filling and how exactly does one know when said cavity is filled.

On page 17, lines 12+, the applicant discloses that the conducting spheres 102 and anode/cathode conducting spheres 113 would be larger multiples of the reactor core 101. The disclosure is insufficient as to what exactly are these "larger multiples."

On page 19, last paragraph, the applicant discloses the sixth non-conducting layer 126 having a conducting sphere divot 159. The disclosure is insufficient as to what exactly is the size of this divot relative to the conducting sphere.

On page 20, lines 1+, the applicant discloses that the harmonics of the electromagnetic fields would not flow smoothly from sphere to sphere without the divot. The disclosure is insufficient as to why exactly said flow would not be smooth without the divot.

On page 20, lines 14+, the applicant discloses that the laser ports 137 may be simple holes. The disclosure is insufficient as to what exactly are the dimensions of the hole relative to the size of the core.

On page 20, last two paragraphs, the applicant discloses that "conducting sphere track 104 could be made of a non-conducting material such as cement." The disclosure is insufficient as to what exactly are: a) the dimensions of the track; b) the composition of the cement to so ensure that the track is non-conducting.

On page 21, lines 5+, the applicant discloses that "the padding material 128 should be able to withstand high temperatures." The disclosure is insufficient as to what exactly are these "high temperatures."

On page 21, 2nd full paragraph, the applicant discloses that the slope of the padding material would be very minor. The disclosure is insufficient as to what exactly is "very minor."

On page 21, 3rd full paragraph, the applicant discloses that the conducting sphere track should have numerous, high volume coolant inlet and outlet pipes . The disclosure is insufficient as to what exactly are: a) number and sizes of inlet pipes; b) number and sizes of outlet pipes; c) material of construction of these pipes.

On page 21, last paragraph, the applicant discloses that the top of the conducting sphere track should have a sliding shield. The disclosure is insufficient as to what exactly are the dimensions of this shield.

On page 22, 2nd full paragraph, the applicant discloses that there should be coil leads 133 that attach hemispherical coils 106 to the main bus, capacitor banks and power grid.. The disclosure is insufficient as to what exactly are the sizes and materials of the coil leads and hemispherical coils.

On page 21, 2nd full paragraph, the applicant discloses that the conducting sphere track will have numerous sensors to monitor physical conditions. The disclosure is insufficient as to what exactly are these "numerous sensors" , where exactly are they located, and what exactly are ranges of the these sensors.

On page 22, last paragraph, the applicant discloses three spheres held in position by an inner shield clamp 110. The disclosure is insufficient as to what exactly are: a) the dimensions of this clamp; and b) the material of construction of this clamp.

On page 23, 2nd full paragraph, the applicant discloses that a coolant is pumped through the middle reactor shield at a "high rate". The disclosure is insufficient as to what exactly is this "high rate."

On page 23, 3rd full paragraph, the applicant discloses that coolant 130 should be carefully monitored so as not to cool the conductor pedestal too much. There is neither an adequate description nor enabling disclosure as to how and in what manner said coolant is so monitored. Same observation applies to page 24, 2nd full paragraph.

On page 24, lines 2+, the applicant discloses that the use of non-conductive gaskets 155 between the middle reactor shield and inner shield clamp. The disclosure is insufficient as to what exactly are the size and material of these gaskets.

On page 24, 3rd full paragraph, the applicant discloses that "Eventually, if the power of these reactor designs reaches expected levels, the use of tritium may be avoided." The disclosure is insufficient as to what exactly is the design power level of the reactor.

On page 24, 3rd full paragraph, the applicant discloses that the pellets will be prepositioned within the reactor core by a three dimensional grid of wires. There is neither an adequate description nor enabling disclosure as to how and in what manner said prepositioning of the pellet inside the closed, multi-layered core is so achieved.

On page 25, lines 1+, the applicant discloses that lasers will be used to implode the pellets. The disclosure is insufficient as to what exactly is the type and energy of these lasers.

On page 25, 2nd full paragraph, the applicant discloses that the diameters of the laser ports should be minimized to prevent disruption of harmonics. The disclosure is insufficient as to what exactly is this "minimal diameter."

On page 26, last paragraph, the applicant discloses that it is preferable to implode the pellet in a spherical pattern. There is neither an adequate description nor enabling disclosure as to how and in what manner said spherical pattern is so achieved and verified.

On page 26, last paragraph, the applicant discloses that "blind spots" can be minimized by having some lasers aimed "slightly off-center." The disclosure is insufficient as to: a) how exactly does one determine whether there are "blind spots"; b) how exactly does one determine the required "slight off-centering."

On page 27, 1st full paragraph, the applicant discloses that the diameter of fuel pellet 136 is important. The disclosure is insufficient as to what exactly is said pellet diameter.

On page 28, 1st full paragraph, the applicant discloses several tests to be performed. The disclosure is insufficient as to how exactly these test will be performed.

On page 29, last paragraph, the applicant discloses that the inner shield clamp may be omitted if it disrupts the harmonics of the reactor core. The disclosure is insufficient as to how exactly does one determine is said harmonics are so disrupted.

On page 32, 2nd full paragraph, the applicant discloses layering hemispherical coils. The disclosure is insufficient as to how exactly said layering is achieved to maintain the coils in place during reactor operation.

On page 78, 1st paragraph, the applicant discloses that energy produced from one igniting core could be used to compress the next reactor core while excess electricity is siphoned off using induction coils. There is neither an adequate description nor enabling disclosure of how and in what manner said compression or siphoning off is so achieved.

On page 78, 2nd paragraph, the applicant discloses that the oval conducting sphere design improves harmonics compared to a circular track design. The disclosure is insufficient as to why exactly said improvement is so achieved by an oval design.

On page 98, 3rd paragraph, the applicant discloses that "if frequency is appropriate, the current could go directly to the power grid." There is neither an adequate description nor enabling disclosure of how and in what manner the reactor core is connected to the electric power grid.

The disclosure is insufficient in failing to set forth, operative embodiments or examples of the invention, including parameters, such as power level of the reactor, type and energy of laser, diameter of pellet, dimensions of trough, composition of the cement for the trough, size and material of the wire for hemispherical coils, number of laser ports, etc. Examples and description should be of sufficient scope as to justify the scope of the claims. See MPEP 608.01(p).

Specific statements by the applicant in the specification that support this lack of operative embodiment of the claimed invention are as follows:

a) "exact thickness of this layer is unknown at this time due to the classified nature of these ceramics" (page 17);

b) "eventually, if the power of these reactor designs reaches expected levels, the use of tritium may be avoided" (page 24);

c) "tests with specific reactor core 101 materials and laser 103 energies will be needed" (page 25);

d) "the design of the lasers and related equipment could be identical to the currently envisioned facility called the National Ignition Facility" (page 25);

e) "the optimum number of laser ports¹³⁷ cannot be stated at this time because of the number of variables involved" (page 27);

f) "the delay and duration of each pulse after its triggering is unknown at this time" (page 28);

g) "the total time width of the laser 103 pulse and the fuel pellet explosion will probably be only about 1 nanosecond" (page 28);

h) "tests must be performed to time the delay between when the laser 103 pulses pass through the laser ports and when the plasma ¹⁵⁰ (fusion burn) starts to explode outwards (page 28);

i) "the delay and duration of each pulse after its triggering is unknown at this time" (page 28);

j) "the exact amount of capacitors needed for the preferred embodiment is not known at this time" (page 32);

k) "it is impossible to state exactly what the goal of the magnetic field over the reactor core 101 should be" (page 34);

l) "it is believed that the invention operates as follows" (page 36);

m) "if the reactor core 101 can be engineered to have enough strength, heat dissipation capability, and current carrying capability, then it would be possible to contain the plasma until fusion fuel is almost totally consumed" (page 59);

n) "perhaps the best core design will be to have no reactor core 101 at all" (page 72);

o) "To summarize, an initial core 101 could be designed ... " (page 85);

p) "There are possible designs, using one or more reactor cores 101, for these types of fusion reactors, create DC currents." (page 98);

The disclosure appears to only set forth a theoretical concept of commercial production of electrical power by nuclear fusion, without any specific instructions, etc. on how such is to be actually accomplished. This view is supported by the failure to set forth a full example of the parameters of an operative apparatus for such power production. One cannot rely on the skill in the art for the selection of the proper quantitative values to present an operative system based on applicant's theories and concepts since these theories and concepts have not been fully and adequately disclosed. See Bank v. Rauland Corp., 64 USPQ 93, In re Corneil et al., 145 USPQ 697.

It is thus considered that the examiner (for the reasons given above) has set forth a reasonable and sufficient basis for challenging the adequacy of the disclosure. The statute requires the application itself to inform, not to direct others to find out for themselves; In re Gardner et al., 166 USPQ 138, In re Scarborough, 182 USPQ 298. Note that the disclosure must enable a person skilled in the art to practice the invention

Art Unit: 3641

without having to design structure not shown to be readily available in the art, In re Hirsch, 131 USPQ 198.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-4, 7-15, 17-20, 22, 24, 26, 28 and 29 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility.

The reasons the invention as disclosed is inoperative are the same as the reasons set forth in section 2 above as to why the disclosure is objected to, and said reasons are incorporated herein.

There is no factual evidence to show that the invention is operative.

It is well established that where the utility of the claimed invention is based upon allegations that border on the incredible or allegations that would not be readily accepted by a substantial portion of the scientific community, the applicant must submit sufficient substantiating evidence of operability. Note In re Houghton; 167 USPQ 687 (CCPA 1970); In re Ferens, 163 USPQ 609, Puharich v. Brenner, 162 USPQ 136 (CA DC 1969); In re Pottier, 153 USPQ 407 (CCPA 1967); In re Ruskin, 148 USPQ 221 (CCPA1966); In re Citron, 139 USPQ 516 (CCPA 1963); and In re Novak, 134 USPQ 335 (CCPA1962).

Claim Rejections - 35 USC § 112

4. Claims 1-4, 7-15, 17-20, 22, 24, 26, 28 and 29 are rejected under 35 U.S.C. 112, first paragraph, for the reasons set forth in the objection to the specification in section 2 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 10, 11, 20, 22, 24, 26 and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Teleki (WO 91/17548) in view of Dawson (U.S. 3,764,466). Teleki discloses the applicant's claims except for the electromagnetic field confinement.

Teleki discloses in Fig. 1 an apparatus comprising a spherical chamber Q containing a targets 1 that can be made of elements of low atomic number (e.g., beryllium or pure copper (see page 15, lines 1+). These targets are accelerated in the middle part (central space G) of chamber Q and form a united charge. There are two spherical chambers A1 and A2 adjacent to chamber Q. These chambers contain x-ray

lasers 9 that cause nuclear reaction in fission elements 7 which, in turn, initiate fusion reaction in fusion mixtures 3. The fusion charge 3 can be made of a mixture including two isotopes of lithium (Li-6 and Li-7), deuterium (H-2) and tritium (H-3). The fusion reaction results in the acceleration of targets 1 toward each other. There will inherently be a reaction also between, for example, free lithium from mixture 3 and the beryllium target within the chamber Q.

Dawson teaches the production and confinement of plasmas by the use of lasers and a magnetic field (see column 7 and 8). One having ordinary skill in the art would have recognized the use of a magnetic field in confining the plasma in the chamber Q to further enhance the fusion process.

Applicant's claim language reads on Teleki's apparatus as follows: "reactor core containing nuclear fusionable material" reads on chamber Q with beryllium target (a fusion target); "conducting spheres" reads on spherical chambers A1 and A2; "divot" reads on the flat surface of 3 of spherical chambers A1 and A2, said flat surface being adjacent to the reactor core.

As to the "wherein" clauses in claims 2, 3, 10, 11 and 22 these are essentially a method limitations or statement of intended or desired use. These clauses, as well as other statements of intended use do not serve to patently distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 152 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See also MPEP 2114 that states:

Art Unit: 3641

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647.

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531.

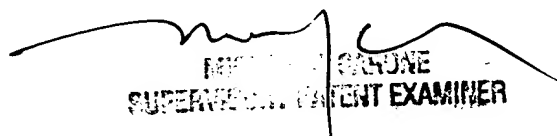
Apparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Teleki, to include a means connected to the conducting spheres (A1 and A2) for initiating a spherical electromagnetic confinement field proximate the reactor core (Q), to gain the advantages thereof, because such modification is no more than the use of conventional designs/techniques within the nuclear art.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B-E further illustrate prior art.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 8:00-4:30, Mon-Fri.


RICK PALABRICA
SUPERVISOR, PATENT EXAMINER